distance between the source audio client and a target audio client, wherein

each audio client is assigned a selected decay characteristic of a plurality of predefined

decay characteristics; and

delivering the attenuated audio data to the target audio client.

44. (Amended)   Computer software, stored on a computer-readable medium, for an audio

conference server (ACS), the software comprising instructions for causing a computer

processor to perform the following operations:

receive audio data from a source audio client;

attenuate the received audio data based on audio decay characteristics to simulate a

distance between the source audio client and a target audio client, wherein

each audio client is assigned a selected decay characteristic of a plurality of predefined

decay characteristics; and

deliver the attenuated audio data to the target audio client.

Please add claim 45 as follows:

45. (New)   The method of claim 1, wherein the selected decay characteristic comprises a

selected decay factor.

REMARKS

The application has been reviewed in light of the Office Action dated March 28, 2001.

Claims 26-44 are pending in this application. By the present Amendment, claims 26 and 44

have been amended and claim 45 has been added. It is submitted that no new matter has been

added and no new issues have been raised by the present Amendment.

Reconsideration is respectfully requested of the rejection of claims 26-42 and 44 under

35 U.S.C. 103(a) as allegedly unpatentable over U.S. Patent No. 5,710,591 to Bruno et al. in

view of Cohen et al., IEEE 1993, "Virtual Gain for audio windows". Reconsideration is

respectfully requested of the rejection of claim 43 under 35 U.S.C. 103 (a) as allegedly

unpatentable over Bruno et al. in view of Cohen et al. as applied to claim 26 and further in

view of U.S. Patent 5,864,816 to Everett. Applicant has carefully considered the Examiner's

comments and the cited art and respectfully submits that independent claims 26 and 44 are

patentable over the cited art for at least the following reasons.

Independent claim 26 of the present application relates to an audio conferencing method

in which audio data is received from a source audio client, attenuated based on audio decay

characteristics to simulate a distance between the source audio client and a target audio client,

wherein each audio client is assigned a selected decay characteristic of a plurality of

predefined decay characteristics, and delivering the attenuated audio data to the target audio

client.

One of the benefits of the audio conferencing method is that the audio conferencing

method provides audio mixing with distance-based attenuation. According to an illustrated

embodiment, this can be accomplished by implementing decay characteristics for categories of

sounds. For example, Figure 7 illustrates a graph showing predefined decay factors for four

categories of sound according to an embodiment. When audio clients are added to the

conference, a decay factor is specified for that audio client. Weighted values for each source

audio client are extracted according to the distance between the target audio client and the

source audio client using the decay factor specified for the source audio client The weighted

values are stored in a mix table and utilized to perform the mixing. (Page 16, line 9 to page

18 line 5) Of course, the claims are not limited to the described embodiments.

Bruno et al., as understood by Applicant, relates to a method and apparatus for

recording and indexing audio information exchanged during an audio conference call or video,

audio and data information exchanged during a multimedia conference. Voice activated

switching functionality of a multipoint control unit provides a video signal, which is input into

the multipoint control unit from a workstation from which an audio signal is detected, to each

of the other workstations in the conference. A workstation or participant-identification signal

is generated by the multipoint control unit and stored with the audio signal and video

information.

Cohen et al., as understood by Applicant, relates to audio windowing at a frontend, or

user interface, to an audio system with a spatial sound backend. Gain adjustment is "used to

control the volume of the various sources." (Abstract, page 85) A virtual gain "can be

synthesized from components derived from iconic size, distance, orientation and directivity

and selectively enabled according to room-wise positioning of sources across sinks."

(Abstract, page 85) As understood by Applicant, virtual gain can be composed into four

dimensionless components including distance effects ($gain_{distance}$). (Cohen et al., p 86) The

distance-dependent gain ($gain_{distance}$) can capture the effects of distance between source and sink

and is defined by a set formula. (Cohen et al., page 87-88) The distant-dependent gain of

Cohen et al. depends on a set formula for all audio clients. That is, in Cohen et al., the

distance-dependent gain ($gain_{distance}$) is a single value at any given distance from a source. (See p. 87-88 and Figure 3).

The distant-dependent gain, $gain_{distance}$, of Cohen et al. is calculated based on a single equation or characteristic for all audio clients. (see Equation (2) on page 87 and Figure 3 on page 88)

Applicant finds no teaching or suggestion in which audio data is received from a source audio client and attenuated based on audio decay characteristics to simulate distance between the source audio client and a target audio client.

Furthermore, the cited art is not understood by Applicant to teach or suggest that each audio client is assigned a selected decay characteristic of a plurality of predefined decay characteristics.

Cohen et al. employs a single, common equation in order to determine $gain_{distance}$ for all participants in a conference.(see Section 1.2)

It is respectfully submitted that amended independent claim 26 is patentable over the cited art for at least the reasons mentioned above.

It is respectfully submitted that independent claim 44 is patentable over the prior art for at least similar reasons.

As noted above, it is believed that claims 26 and 44 are patentable over the combination of Bruno et al. and Cohen et al. Further, Everett is not believed to provide any of the elements missing from Bruno et al. and Cohen et al. that would have made claims 26 and 44 obvious to one of ordinary skill in the art.

In light of the amendments and remarks made herein, it is respectfully submitted that

independent claims 26 and 44 are patentable over the cited art for at least the reasons identified above.

The Office is hereby authorized to charge any additional fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Entry of this amendment and allowance of this application are respectfully requested.

Respectfully submitted,

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MARKED COPY OF CLAIMS

26. (Amended)   An audio conferencing method comprising:

receiving audio data from a source audio client;

attenuating the received audio data based on audio decay characteristics to simulate a

distance between the source audio client and a target audio client[;] , wherein

each audio client is assigned a selected decay characteristic of a plurality of predefined

decay characteristics; and

delivering the attenuated audio data to the target audio client.

44. (Amended)   Computer software, stored on a computer-readable medium, for an audio

conference server (ACS), the software comprising instructions for causing a computer

processor to perform the following operations:

receive audio data from a source audio client;

attenuate the received audio data based on audio decay characteristics to simulate a

distance between the source audio client and a target audio client[;] , wherein

each audio client is assigned a selected decay characteristic of a plurality of predefined

decay characteristics; and

deliver the attenuated audio data to the target audio client.

45. (New)   The method of claim 1 wherein the selected decay characteristic comprises a

selected decay factor.